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The Role of Process Agility and Service Recovery Capability in Enhancing Customer Retention through Logistics Performance in Multinational Logistics Companies in Indonesia

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Abstract: According to PT. X, the percentage of air-shipment irregularities varied between 4.30% and 9.99% in 2024, with cargo damage accounting for over 50% of all recorded cases. This indicates that corporate clients of multinational freight forwarders in Indonesia do not perceive logistics performance as fixed. Few studies have examined the combined effects of process agility and service recovery capacity on retention, either directly or via logistics performance. This is because most of the existing research has focused on each of these factors independently. In this study, we use dynamic capability theory to follow the chain of events that begins with process agility and ends with service recovery capacity influencing customer retention via logistical performance. Out of 135 corporate customers surveyed by PT. X, 133 were deemed legitimate and evaluated using partial least squares structural equation modeling. Logistics performance is a strong predictor of retention and partly mediates the impacts of process agility and service recovery capacity, which are both positively correlated with logistics performance and retention. These findings suggest that international logistics providers would benefit more from enhancing process agility and service recovery capabilities simultaneously rather than focusing on just one of these areas independently, and that logistics performance is an essential determinant of retention.

Keyword: Customer Retention, Dynamic Capability Theory, Logistics Performance, Process Agility, Service Recovery Capability.

INTRODUCTION

Freight forwarders today are being pulled in two directions simultaneously. Buyers of logistics services want speed, precision, and flexibility that only keep rising as trade crosses more borders and supply chains lean further into digital tools, yet the operational reality underneath, aircraft capacity that tightens without warning, schedules that slip, cargo that arrives damaged, keeps producing friction almost daily (Şişman & Demirci Orel, 2025). Two capabilities determine how well a firm absorbs that friction: how fast it can reshape its own processes when conditions shift, referred to here as process agility, and how well it can put things right once a customer has already been let down, referred to as service recovery

capability. Both feed into logistics performance, and logistics performance, in turn, determines whether a client stays.

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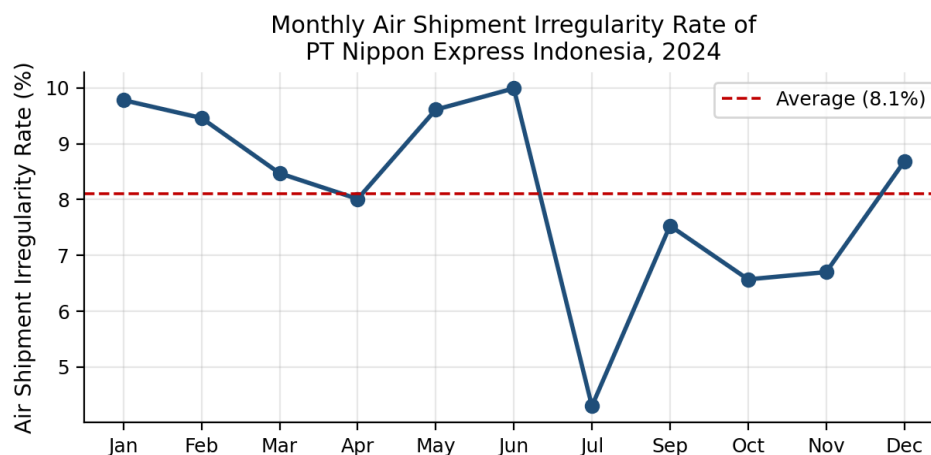
Among the capabilities a logistics firm can build, process agility carries particular weight because its effects reach customers directly rather than staying confined to internal metrics (Şişman & Demirci Orel, 2025). In Turkey, surveying 650 users of business-to-consumer logistics services showed that more agile supply chains translated into better perceived service quality, higher satisfaction, and stronger intent to repurchase (Şişman & Demirci Orel, 2025). A wider meta-analytic review reached a comparable conclusion about agility's operational payoff (Alfalla-Luque et al., 2023); other authors have positioned agility at the core of how service firms build dynamic capability (Humdan et al., 2023), and still others have connected it to digital transformation efforts that raise firm performance (Zhang et al., 2023). Nearly all of this evidence, though, comes out of consumer-facing or general-service contexts. Whether the same relationships hold once the customer is a corporate account inside a multinational freight-forwarding network, the world PT. X operates in, is a question the existing literature leaves open.

Service recovery capability has attracted a comparable amount of attention, from a different angle. Looking at product-replacement situations in retail supply chains, Russo and colleagues found that recovery processes built on procedural and interactional fairness left customers more satisfied and loyal afterward (Russo et al., 2022), a result that treats recovery less as a reactive fix and more as a capability firms can deliberately cultivate. Related work ties perceptions of justice to how satisfied customers feel with complaint handling, and through that satisfaction, to loyalty (Ngoc Quang & Thuy, 2023); still other studies trace how service recovery shapes what customers do after a disruption (Mazhar et al., 2022) and how much frontline employees' handling of a case shapes perceived fairness (Rao et al., 2023). None of this, however, has been tested specifically against logistics performance and retention among multinational logistics operators in Indonesia.

Domestic scholarship on logistics performance and retention tells a narrower story, one centered almost entirely on e-commerce courier services. At Shopee Express, better technology and customer service raised logistics performance, and that improvement carried through to retention (Nasrudin et al., 2025); a comparable chain of effects turned up at an air-cargo forwarder (Umar Dalimunthe et al., 2026), and elsewhere, satisfaction with forwarder service was tied to loyalty and competitive standing (Almofeez et al., 2024). JNE and J&T Express customers reported that service quality shaped both their satisfaction and loyalty (Khairi & Cahyadi, 2023), a finding that surfaces again in quick-commerce delivery (Al-Muani et al., 2024) and, outside Indonesia, in cross-border repurchase decisions (Hui et al., 2024; Lin et al., 2023). What none of these studies reach is multinational freight forwarding for corporate clients, where cross-country supply chain complexity meets process agility and service recovery capability tested together, precisely the terrain PT. X occupies.

That terrain is documented internally in the company's 2024 Carrier Report, which logs every air-shipment irregularity handled that year, unplanned offload, partial shipment, outright damage. Across 14,832 house air waybills, 1,187 such cases were recorded, and the monthly

rate moved between a low of 4.30 percent and a high of 9.99 percent, averaging 8.0 percent for the year. Figure 1 traces that pattern month by month.



Source: PT. X 2024 Carrier Report, processed by the researchers.

Figure 1 Monthly Air Shipment Irregularity Rate of PT. X, 2024

Sorting the 1,187 cases by cause shows an uneven split: 54.4 percent traced back to cargo damage, 37.5 percent to unplanned offload driven by tight airline capacity, and the remaining 8.1 percent to partial shipment. The size of the swings from month to month already hints that logistics performance has not settled into a reliable rhythm, and the concentration of cases in damage and offload leaves the company with two things it cannot skip: reacting fast when disruption hits, which is process agility, and repairing the relationship afterward, which is service recovery capability. Skipping either risks corporate trust, and eventually, retention itself.

Dynamic capability theory, as elaborated in recent supply chain management scholarship (Roh & Xiao, 2024), gives this study its theoretical footing, offering a way to think about how firms build, integrate, and reconfigure competencies as the environment shifts, which is essentially a description of what process agility does. Paired with the idea of service recovery as a customer-facing dynamic capability that keeps trust intact once something has gone wrong (Russo et al., 2022), the theory covers both halves of this study's model. What is missing from the literature is a test of both capabilities together, against retention, whether directly or through logistics performance, in a multinational logistics setting in Indonesia; that gap is what this study addresses.

Dynamic capability theory is preferred here over alternative lenses such as the resource-based view or stakeholder theory for a specific reason: a systematic comparison of the two traditions concludes that the resource-based view explains competitive advantage mainly through resources a firm already holds, whereas dynamic capability theory explains how firms build and reconfigure those resources when the environment itself keeps moving (Kero & Bogale, 2023), which is precisely the situation PT. X faces month to month. Stakeholder theory, for its part, centers on managing competing stakeholder interests rather than on the internal mechanics of adaptation and recovery this study investigates, so it fits less naturally here. Recent supply chain research applying a dynamic-capability lens to agility and resilience reinforces this choice, showing that the capacity to reconfigure resources under disruption, not the resource stock itself, is what most consistently explains performance outcomes (Rana & Bamel, 2026), consistent with process agility and service recovery capability being treated in this study as reconfiguration-oriented capabilities rather than static resources.

The competitive landscape sharpens the stakes further. Corporate clients in Indonesia's multinational freight forwarding market usually have several providers to choose among, and for some service lines, switching costs are low enough not to matter much. A firm that

misjudges its own agility or resilience risks real performance losses the moment disruption strikes (Hamidu et al., 2023), and without a clear read on how process agility and service recovery capability roll into logistics performance and, from there, into retention, a company can lose corporate accounts to rivals regardless of how much it has invested in infrastructure and reach.

Put the phenomenon, the data, and the literature together, and what emerges is an empirical gap rather than a theoretical one, the ideas and constructs already exist, but rarely tested together in this setting. Supply chain agility research has stayed largely within business-to-consumer e-commerce (Şişman & Demirci Orel, 2025) ; service recovery research has stayed largely within general retail supply chains (Russo et al., 2022) ; and Indonesian work on logistics performance and retention has stayed largely within domestic courier services (Nasrudin et al., 2025). Where logistics performance has been developed as a measurable construct (Arabelen & Kaya, 2021; Coşkun & Erturgut, 2022; Gupta et al., 2023), it usually stands alone as a predictor of satisfaction rather than sitting between process agility, service recovery capability, and retention as a mediator. No published study has tested these two antecedents together, with logistics performance mediating, among corporate clients of a multinational freight forwarder in Indonesia.

Closing that gap is this study's contribution: testing process agility and service recovery capability side by side against customer retention, with logistics performance mediating, inside one model grounded in dynamic capability theory, tested among the corporate clients of PT. X, a combination this literature has rarely reached.

With that background established, the study poses the following research questions:

1. How does process agility relate to customer retention?
2. What role does service recovery capability play in shaping customer retention?
3. To what extent does customer retention depend on logistics performance?
4. How does process agility affect the level of logistics performance achieved?
5. Is logistics performance shaped in any meaningful way by service recovery capability?
6. Can logistics performance be shown to carry process agility's effect through to customer retention?
7. Can logistics performance be shown to carry service recovery capability's effect through to customer retention?

In light of this, the study sets out to determine how process agility and service recovery capability affect customer retention, both directly and through the mediating role of logistics performance, among corporate clients of PT. X, taken here as representative of multinational logistics companies operating in Indonesia.

METHOD

An analytical heavy hitter, partial least squares structural equation modeling underpins this study's quantitative, cross-sectional design, which aims to investigate cause-and-effect correlations among the study's variables. Researchers drew information from PT. X corporate, business-to-business clients those most qualified to comment on the logistics service they get during the study's execution at the global freight forwarding operator.

With no public information regarding the exact number of active corporate clients at PT. X, we reached out to them using purposive, non-probability sampling instead of a random draw. We filtered the respondents based on one requirement: they had to have recent, first-hand experience of a service disruption (delay, damage, offload, or partial shipment) to ensure that our answers about service recovery capability were based on real-life experiences and not speculation. With 22 reflecting indicators feeding the model, the research aimed for a sample size of 110 to 220 participants, following a standard PLS-SEM rule of thumb of five to ten respondents per indicator (Hair et al., 2021). After screening for completeness and internal

consistency, 133 out of 135 business contacts' replies were useable, for an effective rate of 98.52 percent.

Ahead of fieldwork, dynamic capability theory (Roh & Xiao, 2024) shaped the conceptual scaffolding behind the questionnaire, which borrowed a semantic-differential scale from earlier research and adapted it to this setting; distribution ran through Google Forms across four days, 13 to 16 August 2026.

The model is based on four main constructs: process agility, service recovery capabilities, logistical performance, and customer retention. These components are spread out among 22 reflecting elements. The five components of process agility measure the speed with which a company responds to changes in demand, incorporates new technology, interacts with its customers, makes information easily accessible, and adjusts its own procedures. The four components of service recovery capabilities are as follows: distributive and procedural fairness, the perception of proper compensation, the speed and fairness of complaint handling, and the overall level of satisfaction. The five aspects of logistics performance are timeliness, dependability, correctness of orders, and physical handling of shipments. There are eight factors that contribute to customer retention, including the following: loyalty, the desire to continue purchasing from the same source, and the frequency and kind of complaints aimed at the company and its employees as well as outside parties.

Several recognized benchmarks were used to run measurement quality via SmartPLS 4 (Ringle et al., 2022). For convergent validity, indicator loadings had to pass 0.70, and Average Variance Reliability criteria include Cronbach's Alpha, Composite Reliability, and rho_A each achieving a minimum of 0.70; discriminant validity criteria include a Heterotrait-Monotrait Ratio remaining below 0.90, cross-loadings, and an extracted value clearing 0.50 (Hair et al., 2021).

Three stages were covered in the study. First, we made sure the outer model was reliable, discriminantly valid, and convergently valid. The inner model was then examined using R-Square values and the statistical significance of the path coefficients that were obtained by bootstrapping over 5,000 resamples. Whenever the p-value remained below 0.05, H1 through H5 were considered supported. Last but not least, bootstrapped specific indirect effects were used to examine the mediating function of logistics performance in H7 and H6. Figure 2 depicts the theoretical basis for this sequence.

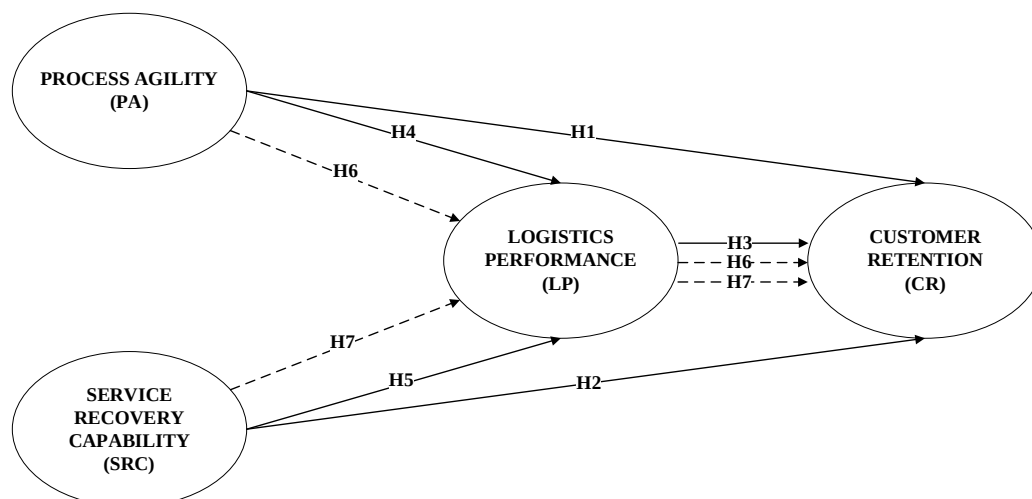


Figure 2 Conceptual Framework

Information:

- : Direct Influence (H1, H2, H3, H4, H5)
- - - - - : The Influence of Mediation (H6, H7)

RESULTS AND DISCUSSION

Result

All 133 respondents whose responses were further reviewed had first-hand experience with service interruptions, delays, damages, offloads, or partial shipments; this is essential for making an informed statement on service recovery capabilities. The data in Table 1 are organized according to the following criteria: gender, age, position, and duration of affiliation with PT. X.

Table 1 Respondent Characteristics

Category	Classification	Frequency	Percentage
Gender	Male	61	45.9%
	Female	72	54.1%
	Total	133	100%
Age	< 20 years	8	6.0%
	20-25 years	24	18.0%
	26-30 years	32	24.1%
	31-35 years	30	22.6%
	36-40 years	21	15.8%
	> 40 years	18	13.5%
	Total	133	100%
Position	Staff/Officer	79	59.4%
	Supervisor	34	25.6%
	Manager	14	10.5%
	Director	6	4.5%
	Total	133	100%
Length of Service Use	< 1 year	33	24.8%
	1-3 years	52	39.1%
	> 3 years	48	36.1%
	Total	133	100%

Source: processed by the researchers (2026).

Evaluation of the Measurement Model (Outer Model)

Establishing the quality of the measurement model serves as a prerequisite before analyzing structural relationships among constructs. This validation process ensures that measurement items faithfully represent their underlying theoretical dimensions. In the context of PLS-SEM analysis, outer loadings serve as the primary metric for assessing indicator adequacy. Following the guidelines proposed by (Hair et al., 2021).

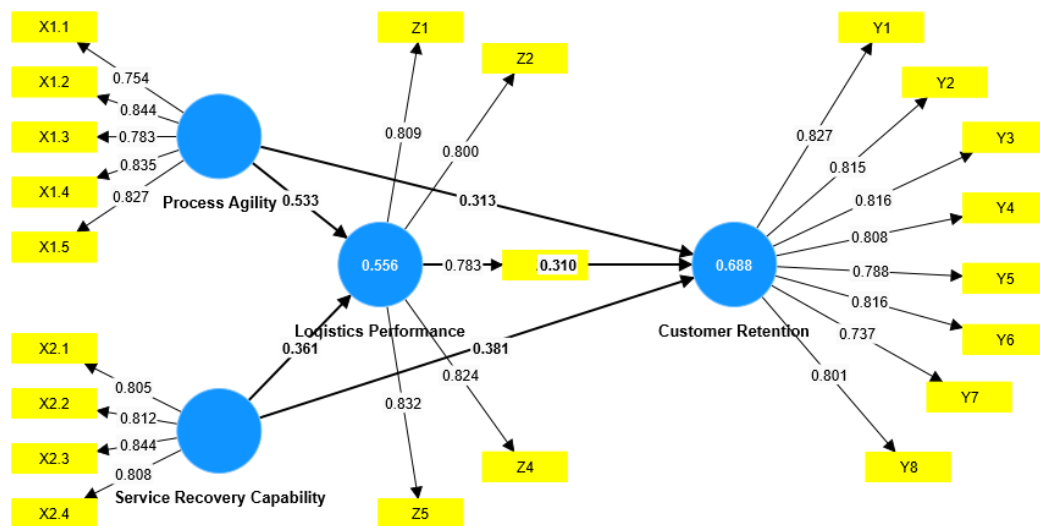


Figure 3 Measurement Model (Outer Loading) and Structural Model (Path Coefficient and R-Square) Output

An item counts as convergently valid once its loading passes 0.70, the higher above that mark, the more strongly the item reflects its construct (Hair et al., 2021). All 22 items across the four constructs cleared that bar, as Table 2 shows, so the full item set was retained without trimming.

Table 2 Outer Loading Validity Test Results

Variable	Indicator	Outer Loading	Description
Process Agility (X1)	X1.1	0.754	Valid (≥ 0.70)
	X1.2	0.844	Valid (≥ 0.70)
	X1.3	0.783	Valid (≥ 0.70)
	X1.4	0.835	Valid (≥ 0.70)
	X1.5	0.827	Valid (≥ 0.70)
Service Recovery Capability (X2)	X2.1	0.805	Valid (≥ 0.70)
	X2.2	0.812	Valid (≥ 0.70)
	X2.3	0.844	Valid (≥ 0.70)
	X2.4	0.808	Valid (≥ 0.70)
Logistics Performance (Z)	Z1	0.809	Valid (≥ 0.70)
	Z2	0.800	Valid (≥ 0.70)
	Z3	0.783	Valid (≥ 0.70)
	Z4	0.824	Valid (≥ 0.70)
	Z5	0.832	Valid (≥ 0.70)
Customer Retention (Y)	Y1	0.827	Valid (≥ 0.70)
	Y2	0.815	Valid (≥ 0.70)
	Y3	0.816	Valid (≥ 0.70)
	Y4	0.808	Valid (≥ 0.70)
	Y5	0.788	Valid (≥ 0.70)
	Y6	0.816	Valid (≥ 0.70)
	Y7	0.737	Valid (≥ 0.70)
	Y8	0.801	Valid (≥ 0.70)

Source: SmartPLS 4 output, processed by the researchers (2026).

With the addition of the Average Variance Extracted convergent-validity test in Table 3, all of the constructions pass the 0.50 floor and settle on a value between 0.643 and 0.668. The consistency in reliability is evident: all four constructions achieve Cronbach's Alpha, rho_A, and Composite Reliability values over 0.70.

Table 3 Reliability and Average Variance Extracted (AVE) Test Results

Variable	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Process Agility (X1)	0.868	0.873	0.905	0.655
Service Recovery Capability (X2)	0.835	0.840	0.889	0.668
Logistics Performance (Z)	0.869	0.871	0.905	0.656
Customer Retention (Y)	0.920	0.922	0.935	0.643

Source: SmartPLS 4 output, processed by the researchers (2026).

The heterotrait-monotrait ratio, which ranges from 0.424 to 0.813 and all fall below the 0.90 ceiling, further supporting discriminant validity and indicating that the four constructs in question are really distinct. Also, we made sure there wasn't any multicollinearity by looking at the variance inflation factors, which were consistently under 5 (ranging from 1.655 to 2.473 in the outer model and from 1.155 to 2.251 in the inner model).

Table 4 Heterotrait-Monotrait Ratio (HTMT) Discriminant Validity Test Results

	Customer Retention	Logistics Performance	Process Agility	Service Recovery Capability
Customer Retention				
Logistics Performance	0.813			
Process Agility	0.734	0.763		
Service Recovery Capability	0.755	0.648	0.424	

Source: SmartPLS 4 output, processed by the researchers (2026).

Structural Model Test Results (Inner Model)

Shifting to the inner model, Table 6 lists R-Square figures alongside the f-Square and significance results drawn from 5,000 bootstrap resamples. Customer retention's R-Square lands at 0.688, so process agility, service recovery capability, and logistics performance together account for close to 69 percent of its variance, a moderate-to-strong showing. Logistics performance's own R-Square of 0.556 means process agility and service recovery capability jointly explain a bit over half its variance, moderate by (Hair et al., 2021) standards.

Table 5 R-Square Test Results

Variable	R-Square	R-Square Adjusted	Category
Customer Retention (Y)	0.688	0.680	Moderate-Strong
Logistics Performance (Z)	0.556	0.549	Moderate

Hypothesis Testing

Each hypothesis was weighed against its bootstrapped path coefficient (β), t-statistic, and p-value, accepted only if p fell under 0.05 and the sign matched what was predicted. Table 8 lays out how the direct-effect hypotheses fared.

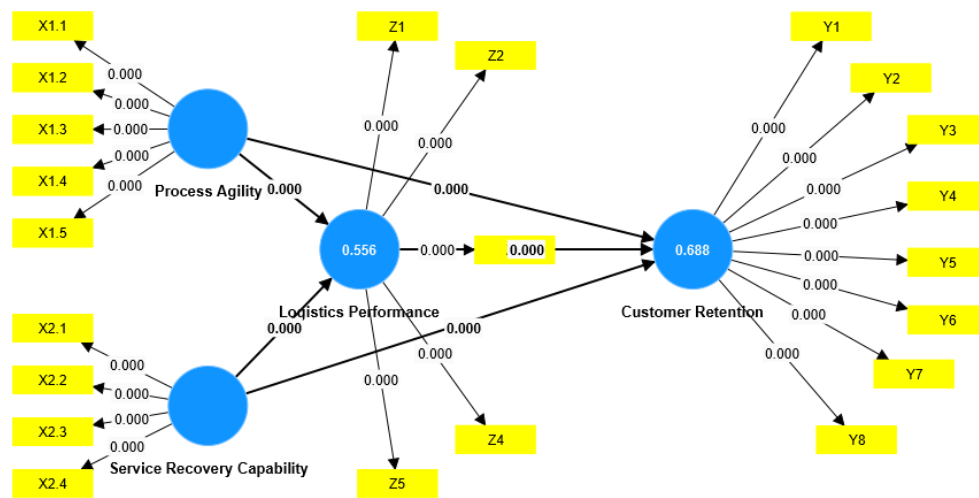


Figure 4 Bootstrapping Analysis Results of the Research Structural Model

The outcomes of the direct effects hypothesis examination are displayed in Table 6.

Table 6 Direct Effect Hypothesis Test Results

Hypothesis	Relationship	Path Coef.	T-Stat	P-Value	Conclusion
H1	Process Agility → Customer Retention	0.313	5.025	0.000	Supported
H2	Service Recovery Capability → Customer Retention	0.381	6.495	0.000	Supported
H3	Logistics Performance → Customer Retention	0.310	4.398	0.000	Supported
H4	Process Agility → Logistics Performance	0.533	9.044	0.000	Supported
H5	Service Recovery Capability → Logistics Performance	0.361	5.080	0.000	Supported

Every direct-effect in Table 6 hypothesis clears that bar, p under 0.05 in each case, sign matching prediction throughout. The single largest relationship belongs to process agility feeding logistics performance ($\beta = 0.533$); the largest direct pull on the outcome variable itself belongs to service recovery capability feeding customer retention ($\beta = 0.381$).

One question remains: does logistics performance actually carry part of process agility's and service recovery capability's influence through to retention, on top of what each does on its own? Table 9 reports the specific indirect effects built to answer that.

Table 7 Mediation Effect Test Results

Hypothesis	Relationship (Mediation)	Path Coef.	T-Stat	P-Value	Status
H6	Process Agility → Logistics Performance → Customer Retention	0.166	3.785	0.000	Partial Mediation, Supported
H7	Service Recovery Capability → Logistics Performance → Customer Retention	0.112	3.250	0.001	Partial Mediation, Supported

Both indirect effects in Table 7 clear $p < 0.05$, so H6 and H7 stand. Given that the matching direct effects (H1 and H2) are significant too, what shows up here is partial rather than full mediation, process agility and service recovery capability reach retention on their own terms and, on top of that, through the boost they give logistics performance.

Discussion

1. The Effect of Process Agility on Customer Retention

The data support H1: process agility exerts a positive, statistically meaningful pull on customer retention ($\beta = 0.313$; $t = 5.025$; $p < 0.001$). This tracks with earlier findings that supply chain agility lifts satisfaction and repurchase intent in e-commerce logistics (Şişman & Demirci Orel, 2025), fits the broader claim that agility is a visible, customer-facing expression of dynamic capability (Alfalla-Luque et al., 2023), and echoes evidence that organizationally agile firms perform better internationally (Salmerón et al., 2025). Read together, these results suggest that PT. X corporate clients are responding to more than delivery outcomes alone, they notice, and reward, how quickly the company adapts when circumstances shift.

Turning that insight into practice, PT. X would do well to treat agility-building as a deliberate retention lever rather than a side effect of ordinary operations. A real-time control tower would let operations staff spot capacity disruptions and react in hours instead of days; standing multi-carrier booking arrangements would soften the offload risk that peaks during busy seasons; and cross-functional training would let frontline staff make fast calls on the spot rather than routing every decision through several layers of approval. Each of these turns a fairly abstract capability into something clients can actually feel.

2. The Effect of Service Recovery Capability on Customer Retention

H2 also holds: service recovery capability positively and significantly predicts customer retention ($\beta = 0.381$; $t = 6.495$; $p < 0.001$), and of the five direct paths tested, this is the strongest. The result lines up with (Russo et al., 2022) finding that procedurally and interactionally fair recovery processes leave customers more satisfied and loyal after something goes wrong, is reinforced by evidence that justice perceptions shape post-failure loyalty through complaint-handling satisfaction (Ngoc Quang & Thuy, 2023), and mirrors a comparable pattern in e-commerce logistics (Fazizah et al., 2024). That this capability outweighs process agility as a direct predictor is telling: for corporate freight clients, apparently, how a failure gets handled counts for more than how seldom failures occur in the first place.

Given that standing, PT. X has good reason to formalize a compensation framework for damage, delay, and offload cases so that outcomes feel consistent rather than negotiated on an ad hoc basis, and to set internal service-level targets, an initial response within 24 hours, say, and resolution within a defined number of working days. Training frontline staff to handle complaints with empathy and transparency would reinforce the same distributive and interactional fairness that the outer-model results flagged as significant.

3. The Effect of Logistics Performance on Customer Retention

H3 is confirmed as well: logistics performance has a positive, significant effect on customer retention ($\beta = 0.310$; $t = 4.398$; $p < 0.001$). This is consistent with what has been observed among Indonesia's e-commerce couriers (Nasrudin et al., 2025) and in cross-border repurchase behavior tied to service quality (Hui et al., 2024), and it fits patterns seen among Indonesian air-cargo forwarders (Umar Dalimunthe et al., 2026), domestic couriers (Rofih et al., 2024), and quick-commerce operators (Al-Muani et al., 2024). Given that the 2024 operational data still show fairly pronounced month-to-month swings in irregularity, the message here is straightforward: corporate clients keep coming back when performance feels dependable, and drift away when it does not.

For PT. X, that argues for treating logistics performance as something to manage continuously rather than review only after complaints pile up. Tightening packaging procedures would chip away at the damage cases that dominate the irregularity figures; clearer shipping-cost communication would align price with the service actually delivered; and a more capable tracking system would let corporate clients see accurate, real-time shipment status without having to chase customer service for updates.

4. The Effect of Process Agility on Logistics Performance

H4 stands as the strongest relationship in the entire model: process agility drives logistics performance ($\beta = 0.533$; $t = 9.044$; $p < 0.001$; $f^2 = 0.555$, a large effect). The result aligns with meta-analytic evidence that supply chain agility consistently lifts operational performance (Alfalla-Luque et al., 2023), with work on resilience and agility amid disruption (Hamidu et al., 2023), and with findings that organizational agility fuels the kind of digital transformation that improves performance (Zhang et al., 2023). In short, if there is one lever that most determines whether PT. X logistics performance stays stable, this is it.

Given that weight, resource allocation should follow suit. Faster adoption of integrated transportation and warehouse management systems would speed up decision-making; adaptive capacity planning worked out jointly with airline partners would head off seasonal demand spikes before they turn into offload cases; and a rapid escalation mechanism spanning operations, customer service, and carrier partners would keep disruptions from dragging delivery performance down.

5. The Effect of Service Recovery Capability on Logistics Performance

H5 is likewise supported: service recovery capability positively and significantly shapes logistics performance ($\beta = 0.361$; $t = 5.080$; $p < 0.001$). This extends (Russo et al., 2022) argument that recovery resilience is a strategic capability by showing it also feeds back into overall performance, not just how a given customer feels after a failure, a pattern consistent with evidence that steadier recovery processes lift service performance in e-retailing (Phan et al., 2021). Practically, it means the lessons buried in individual damage and offload claims are worth mining rather than closing out case by case.

To capture that value systematically, PT. X could route complaint and damage-claim data into a monthly root-cause review, with findings passed directly to the warehouse and cargo-handling teams responsible for the underlying process. Treating recovery data as a diagnostic input, rather than purely a customer-facing fix, is what closes the loop between one customer's complaint and a system-wide performance gain.

6. The Effect of Process Agility on Customer Retention through Logistics Performance

H6 holds too: logistics performance carries a significant share of process agility's effect on customer retention (indirect $\beta = 0.166$; $t = 3.785$; $p < 0.001$), a partial-mediation pattern. This fits evidence that a firm's dynamic capability reaches customer-facing outcomes through an intervening perceived-quality variable (Şişman & Demirci Orel, 2025) and a similar

mediation chain among Indonesian air-cargo forwarders (Umar Dalimunthe et al., 2026). The practical upshot is that agility only pays off for retention to the extent customers can actually perceive it, through timelier, more reliable deliveries, for instance.

Which means internal agility gains have to become visible externally, not just felt inside the organization. A corporate-facing performance dashboard, tracking shipment timeliness and reliability over time for each account, would let PT. X responsiveness to disruption translate into a performance signal that clients can see, and trust, for themselves.

7. The Effect of Service Recovery Capability on Customer Retention through Logistics Performance

H7 rounds out the mediation results: logistics performance also carries a significant portion of service recovery capability's effect on customer retention (indirect $\beta = 0.112$; $t = 3.250$; $p = 0.001$). This reinforces logistics performance's role as a mediating pathway toward retention already documented in Indonesia's logistics sector (Nasrudin et al., 2025) and evidence that service-experience quality feeds retention through deeper customer engagement (Rahayu et al., 2024). Investing in recovery capability, then, pays twice over: it repairs trust with the customer directly affected and, cumulatively, strengthens the company's broader logistics performance record.

Realizing that double payoff calls for a closed loop between the complaint-handling desk and logistics operations, so that improvements in post-failure recovery, faster damage claims, say, get evaluated periodically for their effect on aggregate performance indicators, not just for how they resolved one customer's case. Structured that way, investment in service recovery compounds over time instead of resetting with every new complaint.

8. Dominant Dimensions and the Relative Strength of Direct and Mediating Effects

Looking inside process agility and service recovery capability rather than only at their aggregate scores clarifies why the two antecedents behave differently in this model. Among process agility's five indicators, technology-adaptation capability carries the highest outer loading (0.844), ahead of communication (0.835), ease of process adjustment (0.827), information transparency (0.783), and market-demand responsiveness (0.754), see Table 2. Technology adaptation being the dominant dimension is consistent with evidence that digital and absorptive capability, more than any other single factor, is what converts general organizational agility into measurable supply chain performance gains (Abourokbah et al., 2023). For PT. X, this suggests that among the many ways to build process agility, continued investment in adaptable technology, tracking systems, booking platforms, and control-tower dashboards among them, will do more per rupiah spent than generic process-improvement efforts that do not touch the technology layer.

A parallel look at service recovery capability's four indicators helps explain why this capability outweighs process agility as a direct predictor of retention ($\beta = 0.381$ versus $\beta = 0.313$). The highest-loading indicator by a clear margin is empathy and staff attitude in handling complaints (0.844), ahead of complaint-response speed (0.812), procedural consistency and transparency (0.808), and compensation adequacy (0.805). This pattern matches a growing body of service-recovery research showing that interactional justice, how a customer is treated during a complaint, carries more weight for post-failure loyalty than the tangible outcome of the complaint alone, and that this effect holds even where compensation and speed are already adequate (Lajante et al., 2023). In a business-to-business freight forwarding relationship, where the people handling a claim are often the same account contacts a corporate client deals with repeatedly, empathetic, respectful complaint handling likely does more to protect the relationship than raw speed does, which offers one plausible explanation for why service recovery capability edges out process agility as a direct lever on retention in this study.

The two mediation effects are also worth comparing directly rather than only individually: logistics performance carries a larger share of process agility's effect on retention (indirect $\beta = 0.166$) than of service recovery capability's effect (indirect $\beta = 0.112$). The likely explanation lies upstream, in each antecedent's effect on logistics performance itself, where process agility's path ($\beta = 0.533$) is considerably stronger than service recovery capability's ($\beta = 0.361$). Because the mediated pathway can only carry as much signal as the first leg of the chain generates, process agility's stronger grip on logistics performance gives it more to transmit through that channel, even though service recovery capability keeps the upper hand on the direct path. Practically, this asymmetry argues for two distinct management levers at PT. X rather than one blended strategy: process agility should be managed as a performance-stabilizing investment, one whose payoff for retention shows up mainly through visibly steadier logistics performance, while service recovery capability should be managed as a relationship-preserving investment, one whose payoff for retention shows up mainly through the direct, personal experience of how a failure was handled.

What this study ultimately shows is that logistics performance is not a bystander in the relationship between a logistics firm's dynamic capabilities and its corporate customers' loyalty, it is the bridge, and a partial one at that: process agility does the most to build logistics performance itself, service recovery capability does the most to move retention directly, and both pathways keep their significance even once logistics performance is accounted for. That refines a view common in business-to-consumer e-commerce research, that customer experience alone drives loyalty; in a business-to-business freight forwarding context, it appears to be the demonstrated, perceivable stability of logistics performance, built from agility and recovery efforts working together, that ultimately keeps corporate clients from leaving.

CONCLUSION AND SUGGESTIONS

Conclusion

This study set out to determine how process agility and service recovery capability shape customer retention, directly and through logistics performance, among corporate clients of PT. X as a stand-in for multinational logistics companies operating in Indonesia. Testing 133 respondents through partial least squares structural equation modeling supported all seven hypotheses, so the research questions posed at the outset can be answered point by point below.

1. H1 holds up: process agility moves customer retention in a positive, statistically meaningful direction ($\beta = 0.313$; $p < 0.001$). PT. X's corporate clients evidently weigh not just what happens to a shipment but how nimbly the company adjusts when circumstances change.
2. H2 holds up as well, and more strongly than any other direct path in the model: service recovery capability's pull on customer retention comes in at $\beta = 0.381$ ($p < 0.001$). In business-to-business freight forwarding, apparently, how a failure gets resolved counts for more toward retention than process speed alone.
3. Customer retention also responds positively to logistics performance ($\beta = 0.310$; $p < 0.001$), confirming H3; dependable, perceivable performance, timely and reliable delivery above all, is what keeps corporate clients from looking elsewhere.
4. Among everything tested, H4 produced the single strongest relationship: process agility's effect on logistics performance registers at $\beta = 0.533$ ($p < 0.001$; $f^2 = 0.555$), making it the most fundamental foundation for stable logistics performance.
5. H5 is confirmed too, service recovery capability shapes logistics performance positively ($\beta = 0.361$; $p < 0.001$), a sign that systematically managed recovery efforts strengthen performance broadly rather than just resolving whatever case is in front of the team.
6. Mediation shows up for both antecedents. For H6, logistics performance carries a significant, partial share of process agility's effect on customer retention (indirect $\beta =$

0.166; $p < 0.001$), meaning process agility reaches retention both on its own and through the performance gains it produces.

7. For H7, logistics performance likewise carries a significant, partial share of service recovery capability's effect on customer retention (indirect $\beta = 0.112$; $p = 0.001$), so investment in recovery capability compounds through two channels rather than one.

Altogether, the full model accounts for 68.8 percent of the variance in customer retention (R-Square 0.688) and 55.6 percent of the variance in logistics performance (R-Square 0.556). That level of explanatory power suggests multinational logistics companies in Indonesia cannot rely on process agility or service recovery capability alone to hold onto customers; the two need to work in concert, with logistics performance as the channel that carries their combined effect through. In that sense, this study closes the empirical gap identified at the outset: the largely untested question of how these two antecedents jointly shape customer retention, through logistics performance, among corporate clients of multinational logistics companies in Indonesia.

Limitations

Three caveats bound these findings. The study drew on a single multinational freight forwarder observed over a defined period, so results cannot yet be assumed to generalize across other multinational logistics firms or regions in Indonesia. The model also included only two antecedents, process agility and service recovery capability, leaving room for other influences, customer trust or digital maturity among them, that this study did not test. And because the design is cross-sectional, it captures one moment rather than how these capabilities and their effects shift over time, particularly across seasonal disruption cycles. Readers should weigh the findings with these boundaries in mind.

Recommendation

These findings point toward logistics performance as the priority investment for PT. X and comparable multinational logistics firms in Indonesia, given its role as the channel that turns process agility and service recovery capability into retention gains that clients actually notice. Tighter packaging procedures would cut into the damage cases driving most irregularities, clearer shipping-cost communication would align price with delivered service, and a more capable tracking system would keep corporate clients informed in real time.

Because process agility carries the strongest weight in the model, companies should push faster adoption of integrated transportation and warehouse management technology, build adaptive capacity plans with airline partners, and set up rapid cross-divisional escalation so disruptions get contained before they erode delivery performance. Service recovery capability's standing as the strongest direct driver of retention argues for a standardized, proportionate compensation framework for service failures, internal service-level targets for complaint response, and frontline training centered on empathy and transparency.

Future research could extend beyond a single company to test whether this model generalizes across other multinational freight forwarders in Indonesia and Southeast Asia, and a longitudinal design would capture how these capabilities and their effects shift over time, particularly around seasonal disruption cycles. Bringing in additional variables, customer trust or digital maturity among them, and pairing quantitative testing with qualitative work, in-depth interviews with corporate clients' logistics managers, for instance, would sharpen understanding of the mediating pathways this study has identified.

Author Contribution

Each author contributed distinctly to this study. Nurul Fadhilahqurani Adhiputri led the conceptualization, data collection, data analysis, and manuscript drafting. Maniah and Erna Mulyati shaped the theoretical framework, helped interpret the results, and critically reviewed

and revised the manuscript. All three authors reviewed and approved the final version submitted for publication.

Acknowledgment

The authors thank every respondent who took the time to participate and share information during data collection, and the corporate clients of PT. X whose input made this research possible. Appreciation also goes to PT. X and everyone who provided support, data access, and guidance while this study was being prepared.

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